ACTION MEMORANDUM -RV1

DATE:

SUBJECT: Request for Time-Critical Removal Action Funding, Exemption from the $2 Million Statutory Limit and a 12-Month Exemption at the Niagara Falls Boulevard Site,

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

THRU: Eric Mosher, Chief
Response and Prevention Branch

TO: Walter E. Mugdan, Director
Emergency and Remedial Response Division

Site ID: A23Q

I. PURPOSE

The purpose of this memorandum is to request and document approval to spend up to $ In direct extramural costs and to request an exemption from the $2 million statutory cost limit and 12 month statutory time limit to mitigate threats to human health and the environment posed by the presence of hazardous substances located at 9524 Niagara Falls and 9540 Niagara Falls Boulevard in Niagara Falls, New York. These properties are commonly referred to as "the Site" in this memorandum.

The memorandum serves as approval for the expenditure required for U.S. EPA to take actions described herein to abate an imminent and substantial endangerment to workers of structures and allotments contaminated by hazardous substances. The proposed removal of hazardous substances would be undertaken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C §9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR §300.415. An exemption from the $2 million statutory limit is justifiable under criteria of Section 104(c), 42 U.S.C. §9604(c) and 40 CFR §300.4259(b)(5)(i), which allows for an exemption from the statutory requirements when:

- there is an immediate risk to public health or welfare or the environment;
- continued response actions are immediately required to prevent, limit, or mitigate an emergency; and
- such assistance will not otherwise be provided on a timely basis.

Conditions at the Site meet the criteria for the exemption from statutory limits. If actions are not taken by implementing the immediate response action documented in this memorandum, the contaminants at the Site may lead to addition human exposure to external gamma radiation, and internal contamination of radioactive material, which will ultimately increase cancer risk. The radionuclides of concern include radium-226, also written as ra-226; and radium-228 also written as ra-228. With the increase of radium on the Site, the potential hazard for rn-222, commonly referred to as "radon," and rn-220, commonly referred to as "thoron," maybe present. Sampling of radon and thoron was evaluated in enclosed areas on the Site. Increased radon and thoron levels were observed but none of the samples were over the limit of 4 pCi/g. Once removal of contamination of ra-226 and ra-228 has taken place, the levels of radon and thoron should decrease.

Due to ARARs not being restrictive and due to the origins of the material not being from Uranium operations, a risk assessment was performed of the Site to determine the needed site specific actions to be taken to reduce the risk of cancer to a population of 1 out of 10,000, or commonly referred at 10^{-4} carcinogenic risk. To achieve the risk value of 10^{-4}, removal of the contaminated soils exceeding the following values must be performed at the Site:

Radium-226 at levels in excess of 2.48 picocuries per gram (pCi/g)
Radium-228 at levels in excess of 15.6 picocuries per gram (pCi/g)

There are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS

Site Status: Non-NPL
Category of Removal: Time-Critical
The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Identification Number: NYN000206699
Site ID: A23Q

A. Site Description

1. Physical location and Site Characteristics

The Niagara Falls Boulevard Site is located in a mixed commercial and residential area of Niagara Falls, New York. The site consists of two parcels, namely 9524 Niagara Falls and 9540 Niagara Falls Boulevard with two buildings located on property. This site encompasses approximately 2.53 acres. Currently, the 9524 Niagara Falls Boulevard property contains a bowling alley called Rapids Bowling Center (RBC), with an asphalt parking lot that extends to the front of the property, east of the property, and north of the property; the 9540 Niagara Falls Boulevard property contains a building supply business called the Greater Niagara Building Center (GNBC) that shares its parking lot with the bowling alley to the west of the GNBC building. The parking lot also extends to the north of the GNBC building. To the east of the BNBC building, there is a worn down concrete padded that is crumbling with patches of overgrown grass. Both properties are bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls

Boulevard, beyond which is a residential area; and to the west by a hotel and residential area.

2. Removal Site Evaluation

In 1978, the U.S. Department of Energy (DOE) conducted an aerial radiological survey of the Niagara Falls region and found more than 15 properties having elevated levels of radiation above background levels. It is believed that, in the early 1960s, slag from the Union Carbide facility located on 47th Street in Niagara Falls was used as fill on the properties prior to paving. The Union Carbide facility processed ore containing naturally-occurring high levels of uranium and thorium to be classified as a licensable radioactive source material. Union Carbide subsequently obtained a license from the Atomic Energy Commission, now the Nuclear Regulatory Commission (NRC), and the State of New York; however, the slag had been used as fill throughout the Niagara Falls region prior to licensing. Based on the original survey and subsequent investigations, it is believed that the radioactive Union Carbide slag was deposited on the Niagara Falls Boulevard site.

In September/October 2006 and May 2007, NYSDEC conducted radiological surveys of the interior and exterior of both properties on several occasions using both an Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at 9540 Niagara Falls Boulevard that was constructed after the original building directly on top of the asphalt parking lot, interior radiation levels were relatively low. The highest reading in the newer area was 115 μR/hr; elsewhere throughout the building, radiation levels generally ranged between 10 and 20 μR/hr. Exterior readings taken at waist height generally ranged between 10 and 350 μR/hr, while the maximum reading of 600 μR/hr was recorded on contact (i.e., at the ground surface). At a fenced area behind the building located at 9540 Niagara Falls Boulevard, waist-high readings ranged between 200 and 450 μR/hr, and on-contact readings ranged between 450 and 750 μR/hr. Elevated readings were also observed on the swath of grass between the 9524 Niagara Falls Boulevard property and the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the buildings. Two biased samples of slag were collected from locations that exhibited elevated static Ludlum detector readings: one sample was collected from an area of loose blacktop that indicated readings of 515,905 cpm on the Ludlum detector, and one slag sample was collected in the marshy area that indicated readings of 728,235 cpm on the Ludlum detector.

During a reconnaissance performed by the NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 200 μR/hr with a hand-held PIC unit around an area of broken asphalt and 500 μR/hr from a soil pile containing slag at the NFB site. Readings over 600,000 cpm were recorded with a sodium iodide 2x2 scintillation detector from the soil and slag pile.

On September 10, 2013, USEPA Pre-Remedial Program and Weston Solutions conducted a gamma radiation screening of the 9524 Niagara Falls Boulevard property using a Ludlum 2221 Scaler Ratemeter.

On December 4–5, 2013, further radiological survey information was obtained from the 9524 and 9540 Niagara Falls Boulevard properties. The highest gamma radiation screening results were recorded from the exposed soil area in the rear, northern portion of

the 9540 Niagara Falls Boulevard property.

On December 5–7, 2013, USEPA documented the areas of observed contamination at the NFB site. The areas of observed contamination were delineated by measuring the gamma radiation exposure rates, and determining where the gamma radiation exposure rate around the source equals or exceeds two times the gamma radiation at site-specific background rates. The areas of observed contamination are defined by site-attributable gamma radiation exposure rates, as measured by a survey instrument held 1 meter above the ground surface, which equal or exceed two times the site-specific background gamma radiation exposure rate. At the NFB site, an area of approximately 168,832 ft^2 was found to have gamma radiation levels which exceed two times the background measurement of 8,391 cpm. PIC data were also collected at several points to confirm the boundary.

On December 11, 2013, USEPA Pre-Remedial Program and Weston Solutions collected a total of 16 soil samples (including one environmental duplicate sample) and three slag samples from fifteen boreholes advanced throughout the NFB site and the First Assembly Church property located directly adjacent to the east/northeast of the site property, using hollow-stem auger drilling methods. The two soil samples collected on the First Assembly Church property are to document background conditions. At each sample location, soil samples were collected directly beneath slag; at locations where slag was not present, the soil sample was collected at the equivalent depth interval.

The soil samples were analyzed for metals by inductively coupled plasma (ICP) technique and mercury by manual cold vapor technique in accordance with SW-846 Method 6010C and 7471B, respectively. In addition, soil and slag samples were analyzed for isotopic thorium and isotopic uranium by alpha spectrometry according to DOE method A-01-R, and radium-226 and radium-228 by gamma spectrometry according to DOE Method GA-01-R. Analytical results indicate concentrations of radionuclides found in the slag and soil to be significantly higher than at background conditions (i.e., greater than 2x background concentrations).

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On April 28, 2014, USEPA Pre-Remedial Program and Weston Solutions collected radon and thoron concentration measurements from locations on and in the vicinity of the NFB site. At the selected locations in background areas, above the source material, and off the source area, radon and thoron concentration measurements in pCi/L were collected with RAD7 radon detectors. The radon and thoron measurements were collected at heights of one meter above the ground surface. The measurements included uncertainty values, which were taken into account to calculate adjusted concentrations for evaluation of

observed release in the air migration pathway. There were no radon or thoron concentrations that exceeded the site-specific background, nor were there any adjusted concentrations that equaled or exceeded a value two standard deviations above the mean site-specific background concentration for that radionuclide in that type of sample (i.e., there is no evidence of an observed release to air from site sources).

USEPA Pre-Remedial Program performed an assessment at the Niagara Falls Boulevard Site (NFB) in 2013-2014. Based on the Pre-Remedial Evaluation, a recommendation of **NO FURTHER REMEDIAL ACTION PLANNED (NFRAP)** was given for the Niagara Falls Boulevard site. However, it was determined that further assessment should be performed and the site was referred to the USEPA Removal Program (Refer to file name: [redacted])

The EPA conducted Removal Assessment activities from July 2015-August 2015 (EPA 2015 Removal Assessment Report). The results of this assessment indicated:

- Rapids Bowling Center-Indoor (N001)
    - Gamma
        - Ludlum 2241-Gamma survey results. The Background reading range was 7,000-8,500 cpm. (Figure 4 A N001 in the EPA 2015 Removal Assessment Report).
            - Walk in Cooler (WIC) area ranged from 12,000-13,000 cpm. However, there was one point that read 29,000-30,000 cpm (Hot Spot-1).
            - Side Lounge Area ranged from ranged from 8,200-15,500 cpm. However, along the outer wall, the reading was 17,500-19,500 cpm (Hot Spot-2).
            - Locker Area-2 reading along the outer wall was 17,500-18,500 cpm (Hot Spot-3).
            - Locker Area-1 reading along the outer wall was 13,500-14,000 cpm (Hot Spot-4).
            - Rear Vestibule reading along the outer wall was 38,500-45,500 cpm (Hot Spot-5).

*Note: 1) The Walk in Cooler and Rear Vestibule additions were installed after the radioactive fill was put in place. 2) Locker Area 1 & 2 as well as the Side Lounge area have readings coming from the outer wall facing the parking lot. The slight increase in reading may be caused from shine from the contamination under the parking lot.

- Greater Niagara Building Center-Indoor (N002)
    - Radon
        - Charcoal Radon Canisters-The Background reading was 0.1piC/L.
            - There are elevated levels of radon inside the building supply warehouse (The Building is designated as N002 in the EPA 2015 Removal Assessment Report). This area is located at the north end of the building (Building area is identified as Warehouse #3(WH-3) in the EPA 2015 Assessment Report Figure 6B). The radon results from carbon canister sampling

ranged from 2.6-4.0 piC/L (NFB Table 3 Radon Analytical Results Summary in the EPA 2015 Removal Assessment Report). These elevated radon readings are near or at the EPA action level of 4.0 piC/L. Also to be noted, the radon sampling was conducted while the business was operating normally, which means the bay doors within the building were open throughout the daytime operating hours during the sampling period. This may have lowered the radon concentration collected on the canister. Lastly, the sampling was conducted during the summer months when radon results are lower than during the winter months.

- Gamma
  - Ludlum 2241-Gamma survey results. The Background reading range was 7,000-8,500 cpm. (Figure 4 B N002 in the EPA 2015 Removal Assessment Report).
    - Office-3 (OF-3) ranged from 85,000-175,000.
    - Storage-2 Area (ST-2) ranged from 82,000-175,000 cpm. However, there was one point that read 195,000-200,000 cpm (Hot Spot-1).
    - Southwest Front Foyer (FY) ranged from 90,000-121,000 cpm.
    - Bathroom-3 (BT-3) ranged from 30,000-100,000 cpm.
    - Warehouse #2 (WH-2) Area ranged from 10,900 cpm-16,140 cpm. However, there was one point that read 48,000 cpm-50,000 cpm (Hot Spot-2).
    - Storage-6 Area (ST-6) ranged from 28,400 cpm-40,000 cpm. However, there was one point that read 49,000 cpm-51,000 cpm (Hot Spot-3).
    - Warehouse #3 (WH-3) Area ranged from 28,000 cpm-52,000 cpm. There is a trench in Warehouse #3 with a metal plate. At the surface the readings ranged between 50,000-80,000 cpm. After removing the metal plate, the readings ranged between 178,000-182,000 cpm (Hot Spot-4).

  - Reuter Stokes Pressurized Ionization Chamber (HPIC) - Gamma static measurement results. The Background reading range was 6.36 - 12.08 µR/hr. (Figure 5B N002 in the EPA 2015 Removal Assessment Report).
    - Office-3 (OF-3) had a static measurement of 67.62 µR/hr.
    - Storage-2 Area (ST-2) had a static measurement of 88.70 µR/hr.
    - Warehouse #3 (WH-3) had a static measurement of 34.28 µR/hr.

*Note: 1) The Office-3, Storage-2, Southwest Front Foyer, Bathroom-3 and Warehouse #3 additions were installed after the radioactive fill was put in place.

- Niagara Falls Boulevard Site (N001 & N002) Outdoor Results from both Pre-Remedial 2013-2014 Assessment and Removal Program 2015 Assessment

    - Gamma
        - Pre-Remedial 2013-2014 Assessment- The Ludlum 2221 was used to perform gamma survey readings. The maximum readings were over 300,000 cpm with a background reading of 9,000 cpm (Pre-Remedial 2013-2014 Assessment, Figure 3)

    - Soil Samples
        - All of the fill material samples exhibited elevated activity.
        - The maximum concentrations in the outdoor samples were detected in Sample 2223-SG-02 (EPA Pre-Remedial Site Investigation Report, Table 1) as follows:

            - U-238 at 196 pCi/g;
            - Th-230 at 150 pCi/g;
            - U-233/234 at 179 pCi/g;
            - Ra-226 at 199 pCi/g;
            - Th-232 at 541 pCi/g;
            - Ra-228 at 807 pCi/g; and
            - Th-228 at 554 pCi/g

3. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Many mining and processing industries in the United States involve Naturally Occurring Radioactive Material (NORM) as a means of extracting a variety of valuable products from raw materials such as ores. The extraction of niobium, used to manufacture stainless steel, high temperature alloys, jet engines and gas turbines, comes primarily from pyrochlore ore found mainly in Brazil. Material containing radionuclides that are present naturally in soil, rocks, water and minerals and whose radioactivity has been concentrated and/or exposed to the accessible environment as a result of human activities is referred to as Technologically Enhanced Naturally Occurring Radioactive Materials, or TENORM. When companies began extracting niobium from ore, no one suspected that the principal minerals being mined or processed contained TENORM in the waste. As a result, radioactive waste at niobium mines or mineral processing/manufacturing facilities are often regarded as non-hazardous material and were disposed improperly. Majority of the companies, including Union Carbide of New York, recycled and sold the waste to many businesses within the area, one being the Site property, as fill dirt for projects including road construction and parking lots. The Site used Union Carbide's fill dirt for their parking lot is located at 9524 and 9540 Niagara Falls Boulevard.

With the release of radium into the environment, exposures of radioactive materials to the public at the Site may come from a variety of pathways including inhalation from dusts and gases, ingestion from dusts, soils, water, as well as, direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Both workers of the Rapids Bowling Center and Greater Niagara Building Center, as well as

the passerby, patrons and merchants, and the public at or near the Site are being exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the parking areas, as well as, indoors.

4. National priority list status

In June 2013, the Pre-Remedial Program submitted the recommendation of **NO FURTHER REMEDIAL ACTION PLANNED (NFRAP)** for the Niagara Falls Boulevard site. Therefore, this Site is not on the National Priorities List.

5. Maps, pictures, and other attached documents

Attachment A: A site location map

B. Other Actions to Date

1. Previous actions

No mitigation activities have been conducted to date.

2. Current actions

September 2013-April 2014: EPA conducted a Pre-Remedial Assessment.
July 2015-August 2015: EPA conducted a Removal Action Assessment from.

C. State and Local Authorities' Role

1. State and local actions to date

In 1978, the U.S. Department of Energy conducted an aerial radiological survey of the Niagara Falls region and found more than 15 properties having elevated levels of radiation above background levels.

In September/October 2006 and May 2007, NYSDEC conducted radiological surveys of the interior and exterior of both properties on several occasions using both an Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at 9540 Niagara Falls Boulevard that was constructed after the original building directly on top of the asphalt parking lot, interior radiation levels were relatively low. The highest reading in the newer area was 115 μR/hr; elsewhere throughout the building, radiation levels generally ranged between 10 and 20 μR/hr. Exterior readings taken at waist height generally ranged between 10 and 350 μR/hr, while the maximum reading of 600 μR/hr was recorded on contact (i.e., at the ground surface). At a fenced area behind the building located at 9540 Niagara Falls Boulevard, waist-high readings ranged between 200 and 450 μR/hr, and on-contact readings ranged between 450 and 750 μR/hr. Elevated readings were also observed on the swath of grass between the 9524 Niagara Falls Boulevard property and the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the buildings. Two biased samples of slag were collected from locations that exhibited elevated static Ludlum

detector readings: one sample was collected from an area of loose blacktop that indicated readings of 515,905 cpm on the Ludlum detector, and one slag sample was collected in the marshy area that indicated readings of 728,235 cpm on the Ludlum detector.

During a reconnaissance performed by the NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 200 μR/hr with a hand-held PIC unit around an area of broken asphalt and 500 μR/hr from a soil pile containing slag at the NFB site. Readings over 600,000 cpm were recorded with a sodium iodide 2x2 scintillation detector from the soil and slag pile.

2. Potential for continued state/local response

Neither NYSDEC, NYSDOH nor the local government has the resources available to conduct a removal action at the Site. NYS referred the site to EPA on June 21, 2013. These organizations will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Current Site conditions pose ongoing releases and the threat of future releases of hazardous substances, namely: radium-226 and ra-228 with the potential of radon and thoron. The likelihood of internal human dose, via ingestion and/or inhalation of hazardous substances, external human exposure/dose, and the threat of future releases and migration of those substances, pose an imminent and substantial endangerment to the public health or welfare of the United States or the environment based on the factors set forth in the NCP, 40 CFR §300.415(b)(2).

A. Threats to Public Health or Welfare

Section 300.415(b) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) states:

> "At any release, regardless of whether the site is included on the National Priorities List (NPL), where the lead agency makes the determination, based on the factors in paragraph (b)(2) of this section, that there is a threat to public health or welfare of the United States or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or the threat of release."

Based on the factors in paragraph Section 300.415(b)(2), the following factors justify a removal action at the Site:

Section 300.415(b)(2)(i)—Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants:

The Site contains two active businesses, Rapids Bowl Center bowling alley and the Greater Niagara Building Center supply business, that operate in the confines of the Site boundary. Based on the preliminary data, specific populations are affected by the

contamination. The population whose cancer risk has increased due to being exposed externally and/or internally by contamination on the property is known as "receptor." The receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

Outdoor worker:
An outdoor worker who is employed a full time could come in contact with the contaminants while working on-site conducting outdoor maintenance activities throughout the day. The worker maybe exposed long-term to the on-site surface soil contaminant during the work day while performing work related tasks such as moderate digging or landscaping. The outdoor worker may ingestion soil and could be exposed to contaminants via the following pathways: incidental ingestion of soil, external radiation from contaminants in soil, inhalation of fugitive dust.

Indoor worker:
An indoor worker may come in contact with contaminants while working indoors without any direct contact with outdoor soils. An example includes being exposed to contaminants through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contaminants in soil, and the inhalation of contaminants present in indoor air.

Recreators:
A recreator may spend time outside involved in recreational activities on the Site. Recreators may come in contact with or be exposed to contaminant(s) for short periods of time, over a long term. One example on the Site is the fenced in area to the northeast corner of the parking lot, that has evidence of local teenagers frequenting the area as a local hangout.

Construction Workers:
Construction Workers may come in contact with or be exposed to contaminant(s) short-term during the work day while working around vehicles suspending dust in the air. Activities such as trenching and excavating could typically involve on-site exposures to surface soils. The construction worker could be exposed to contaminants via the following pathways: incidental ingestion of soil, external radiation from contaminants in soil, inhalation of fugitive dust

Section 300.415(b)(2)(iv)—Actual or potential contamination of drinking water supplies or sensitive ecosystems

Beyond north of the parking lot is overgrown wetland area with vegetation which is referred to as the "marsh," This wetland, marshy area flows to the Cayuga Creek. If contaminants migrate to the marsh, the impact could affect the Cayuga Creek.

Section 300.415(b)(2)(iv)—High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface that may migrate:

Ra-226 has been detected in surface soils at levels as high as 199 pCi/g and Ra-228 has been detected in surface soils at levels as high as 807 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic

into the existing buildings and lands on site, and/or homes and residential areas. Since radium has a long half-life, it is highly probable that the Site will undergo physical changes before the radium on site will decay to background (i.e. roughly 16000 years). Building demolition and/or construction may result in increased exposures to humans from the contaminants of concern being suspended or airborne. In addition to human activities, contaminants may also migrate by weathering and/or animal interaction. Migration of the contaminant is likely to occur if removal is not performed.

Section 300.415(b)(2)(vi)—Threat of fire or explosion:

The fenced are on the northeast side of the asphalt parking lot has evidence of trespassing by local teenagers who use this area as a local hangout. Public visitors, patrons, and/or trespassers at the Site could cause a fire that would have a catastrophic result releasing the contaminants into the air. In addition, a fire within either buildings located on the Site could result in the generation of smoke containing radioactive materials that could migrate off-site into neighboring residential and commercial areas. This could lead to widespread contamination and increase exposure to gamma, and alpha and beta emitting radionuclides.

Section 300.415(b)(2) (vii)—The availability of other appropriate Federal or State response mechanisms to respond to the release:

The State of New York is not currently able to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

B. Threats to the Environment

At this time there is no documentation to indicate that the Site is currently having an acute impact to any sensitive environments or natural resources. Analytical testing has confirmed the presence of elevated levels of radionuclides in soil at the Site. The contaminated soils will continue to spread through migration via surface water runoff, humans and animals activities, and wind. Contamination may spread to other soils and potentially contaminated the wetland areas surrounding the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

1. There is an immediate risk to public health or welfare or the environment.

Continued response actions beyond 12 months will be required to complete the necessary removal actions to mitigate the threats posed by this Site. Conditions at the Site and the proposed actions meet the criteria for an emergency exemption as specified in CERCLA

Section 104(c). There are immediate risks to public health and the environment, and continued response actions are immediately required to prevent, limit or mitigate the release or threat of release of hazardous substances at the Site. Neither the state, nor local government can provide assistance on a timely basis. Radium contamination are causing the public and workers to be exposed to unacceptable daily doses of radiation.

2. Continued response actions are immediately required to prevent, limit, or mitigate an emergency.

The radioactive material that has impacted the Site is ra-226 and ra-228. The maximum concentrations of these materials are 199 pCi/g and 807 pCi/g, respectively. These radionuclides pose an immediate risk to public health, welfare and the environment. Should the ongoing and planned removal activities not be completed, the public would continue to be exposed to unacceptable radiation levels from this Site; ultimately increasing the public's risk to cancer. These threats must be addressed by the ongoing removal action until they are effectively mitigated.

3. Assistance will not otherwise be provided on a timely basis.

Other federal, state, or local response mechanisms and resources are not available to respond to the release and/or threat of release of hazardous substances, contaminants, or pollutants from this Site in a timely manner. Both the State and local government lack the necessary resources to perform a response at this Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The objective of the removal action is to eliminate the threat of exposure to hazardous substances, pollutants or contaminants present both inside and outside the buildings at the Site. The EPA will mobilize the Emergency and Rapid Response Services contractor to the Site and will complete the following:

1. Proposed action description

The U.S. Environmental Protection Agency (EPA) issued guidance entitled "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997). This 1997 guidance provided clarification for establishing protective cleanup levels for radioactive contamination at CERCLA sites. As outlined in 40 CFR § 300.430(e)(2)(I)(A)(1), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) provides that, for carcinogens, preliminary remediation goals should generally be set at levels that represent an upper-bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} when Applicable or Relevant and Appropriate Requirements (ARARs) are not available or are not sufficiently protective.

Since removal actions are not a part of the remedial program, removal is not mandated to meet the risk requirements of 10^{-4} to 10^{-6} for site cleanups. However, in recent years, EPA

has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer), a risk assessment must be performed. EPA's Preliminary Remediation Goal (PRG) Calculator was created to help calculate risk vs. cleanup levels for various receptors taking into consideration exposures from all potential pathways, and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). The most conservative receptor used for determining the cleanup values for the removal was the scenario involving a composite worker whose daily duties included both indoor and outdoor activities. The cleanup value established for the site, based on an increase of 10^{-4} cancer risk, are:

Ra-226 of 2.48pCi/g
Ra-228 of 15.6 pCi/g

Soil contaminated with ra-226 above 2.48 pCi/g and/or with ra-228 above 15.6 pCi/g will be transported to U.S. Ecology's disposal facility in Grand View, Idaho. After removing the soils from the affected area, samples will be collected to verify levels are well below the cleanup values and the excavated soil will be replaced with "clean soils." Clean soils are soils that have been analyzed for ra-226 and ra-228, with results indicating that the concentration is at or below the background and that all other hazardous substances, pollutants. Areas currently asphalted, concreted, sodded, or graveled over, will be replaced with asphalt, concrete, sod, or gravel, accordingly.

Transportation, treatment, storage, and disposal of hazardous substances will be in accordance with all applicable local, state, and federal requirements, and off-site disposal will comply with the CERCLA Off-Site Rule promulgated pursuant to:

- CERCLA § 121(d)(3),
- 42 U.S.C § 9621(d)(3), and
- Codified at 40 CFR §300.440.

2. Contribution to remedial performance

The actions proposed in this Action Memorandum should not impede any future remedial plans or other response actions for this Site, although it is expected that no further response actions will be required at the Site.

3. Description of Alternative Technologies

Alternative technologies will be considered, so long as they prove to be cost effective, efficient and consistent with the NCP. This section has been removed from the current guidance.

4. Engineering evaluation/cost analysis

Due to the time-critical nature of this removal action, an EE/CA will not be prepared.

5. Applicable or relevant and appropriate requirements

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation. ARARs are defines, per Section 300.5 of the NCP, as applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under Federal environmental or state environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstances at the CERCLA site.

It remains EPA's policy that ARARs will generally be considered protective absent of multiple contaminants or pathways of exposure. There are some incidents, especially with the properties located at 9245 Niagara Falls Blvd, that establishing a site specific PRG would be more protective than using the UMTRCA ARAR for radium-226 and ra-228 of 5pCi/g of radium for soil contamination at uranium mill tailing sites. Site specific PRG numbers were calculated. The highest risk receptor was used in determining the most conservative value for cleanup values of the Site.

6. Project schedule

The response activities described in the proposed action description above will be initiated upon the approval of this Action Memorandum. The EPA estimates the response activities will require 12-24 months to complete. This schedule is dependent on numerous factors including the cooperation of the tenants, favorable weather conditions and field conditions consistent with those encountered during the site assessment. Changes in any or all of these factors will have an impact on the project schedule.

B. Estimated Costs

A summary of estimated costs for the action is presented below.

Direct Extramural Costs	Funding Verbally Authorized on	Ceiling Increase Requested	Proposed New Project Ceiling
Regional Advice of Allowance Costs (Total cleanup contractor including labor, equipment and materials) Incl 20% Contingency	$	$	$
Other Extramural Cost not Funded from the Regional Allowance (RST2)	$	$	$
Subtotal, Extramural Costs	$	$	$
Extramural Costs Contingency	$	$	$
Total Removal Action Project Ceiling		$	$

VII. EXPECTED CHANGE IN THE SITATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented onsite, and the potential exposure pathways to nearby populations described in Section III. A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action section in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-site (e.g. capping, disposal cells) or where there is a potential national precedent-setting issue related to the radioactive materials. In this instance the radioactive materials will not be managed in place and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

IX. ENFORCEMENT

The EPA has identified XXXX as a viable PRP. The OSC will work with the Removal Action Branch enforcement staff and the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with this removal action.

The total EPA costs for this removal action based on the full-cost accounting practices that will be eligible for cost recovery are estimated to be $.

COST CATEGORY	AMOUNT
Direct Extramural Cost	
Direct Intramural Cost	
Subtotal Direct Costs	
Indirect costs (Indirect Regional Cost Rate 33.08%)	
Estimated EPA Costs eligible for Cost Recovery	

Note: Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document represents the selected removal action for the Niagara Falls Boulevard Site located in Niagara Falls, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action and I recommend your approval of this removal action. The total project ceiling, if approved, will be $XXXXX. Of this, as much as $XXXXX will come from the Regional removal allowance.

Please indicate your formal approval of the verbal authorization, request for a ceiling increase and a 12-month exemption for the removal action at the Niagara Fall Boulevard Site, as per current Delegation of Authority, by signing below.

APPROVAL: _____ **DATE:**_____
Walter E. Mugdan, Director
Emergency and Remedial Response Division

DISAPPROVAL: _____ **DATE:**_____
Walter E. Mugdan, Director
Emergency and Remedial Response Division

cc: W. Mugdan, ERRD-D
A. Carpenter, ERRD-DD
E. Mosher, ERRD-RPB
J. Daloia, ERRD-RPB
J. Rotola, ERRD-RAB
E. Wilson, ERRD-RAB
B. Grealish, ERRD-RAB
D. Garbarini ERRD-NYRB
T. Lieber, ORC-NYCSFB
J. Regna, ORC-NYCSFB
M. Mears, PAD
K. Giacobbe, OPM-GCMB
T. Grier, 5202G
P. McKechnie, OIG
A. English, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA
L. Battes, NYSEMO
S. Bates, NYSDOH
R. Craig, RST

Attachment A